

JPL Year 2000 Project: Management by Processes and Metrics

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From: "Robert L. Miller" <rlmiller@jpl.nasa.gov>
Subject: ACM Presentation Abstract
Cc:
Bcc:
X-Attachments:

Title: JPL Year 2000 Project: Management by Processes and Metrics

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Abstract

In 1998, Jet Propulsion Laboratory created an institution-wide project to ensure that no system depending upon information technology (IT) would suffer an interruption due to date-related processing through 2015. Such an undertaking was unparalleled in the number of affected organizations and assets, the shortness of schedule, and the degree of external interest.

In order to meet this challenge, the JPL Y2k Project adopted the following approach:

- Provided universal and unambiguous statements of requirements, processes, and procedures
- Compiled an unprecedented database about JPL IT assets and plans
- Created real-time, web-based, context-sensitive metrics
- Reviewed progress on the above items, on a weekly basis, with a Project team having representatives from every major JPL organization

These steps ultimately culminated in an uneventful, and thereby successful, transition to 2000.

Year 2000 Project Objectives

- **Full Year 2000 Compliance for JPL**
 - **Operational Systems**
 - **Desktop Computers**
 - **Facilities**
 - **Business Systems**
 - **Laboratories**
 - **Others**

History: Few Believers in 1998

- **Frequent Responses by Engineers**
 - Only Affects Business Systems
 - My Code Was Designed Compliant
- **Frequent Responses by Managers**
 - No Time
 - No Available Work Force
 - No Money
 - Existing Commitments Will Slip

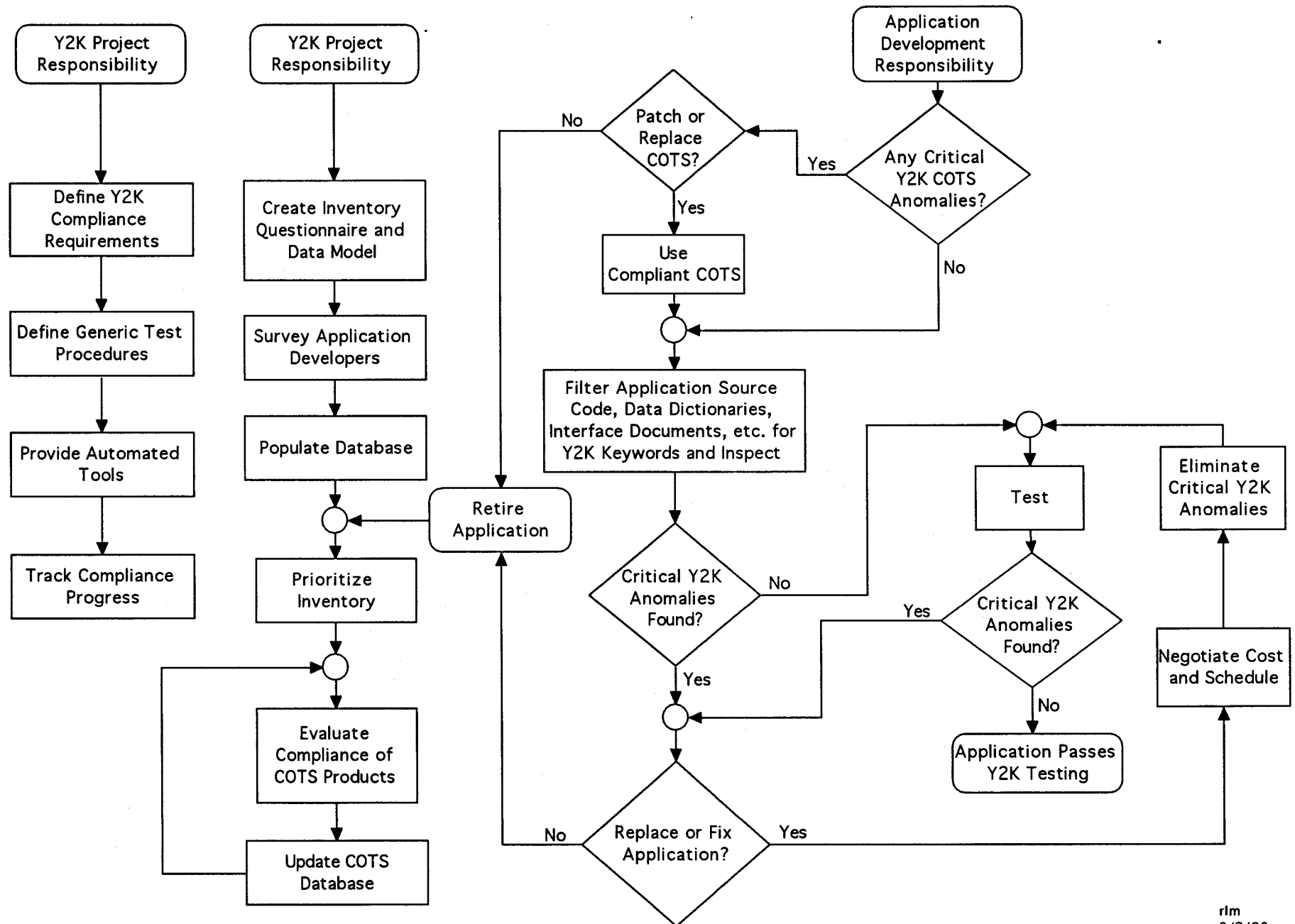
Year 2000 Project Approach

- **Obtain Executive Management Support**
- **Meet Weekly with Representatives from Line and Funding Organizations**
- **Document Formal Compliance Process**
- **Provide On-Line Real-Time Metrics and Reports**

Process-Based Approach

- **Issued Y2k Inventory Policy Applying To:**
 - **IT Products or Services that are Delivered to Other Organizations**
 - **Items Used to Develop or Support a Product or Service Delivered to Other Organizations**
 - **Items Used to Support the Development or Operation of Another Y2k Inventoried Item**
 - **Hardware with Embedded Information Processing Elements**
- **Y2k Compliance Requirements Document**

JPL Y2K COMPLIANCE PROCESS



Process-Based Approach

- **JPL Y2k Project Provided**

- **Input Screens for On-Line Inventory Database**
- **Certification and Waiver Procedures Using Electronic Signatures and File Archive**
- **Independent “Witnesses” of Y2k Documents**
- **Code Filtering Services for Developers**
- **Generic Test Worksheets**
- **COTS Product Y2k Status, Patches, and Internal Analyses**
- **Desktop Computer Sticker Process**

Process-Based Approach

- **Development Organizations Provided for Each Inventory Item**
 - Description Including Supporting COTS Products
 - Certification or Retirement Plans
 - Code Inspection Report
 - Y2k Test Facility, Test Data, and Sys Admin
 - Test Procedures and Report
- **Development Organizations Also Provided Desktop Computer Y2k Plans and Status**

Red colored fields are required before the record will be accepted; Usage information can be obtained by clicking the hyperlinked text.

Record enter date	2000-02-02
	<input type="text" value="Robert L. Miller"/>
	<input type="text"/> <input type="text"/> <input type="text"/>
Version Number	<input type="text"/>
Inventory Item Short Name	<input type="text"/>
Y2K Compliant Version Name and Number	<input type="text"/>
Inventory Item Functional Description	<input type="text"/> <input type="text"/> <input type="text"/>
First Level Group Name	<input type="text"/>
Second Level Group Name	<input type="text"/>
Third Level Group Name	<input type="text"/>
	<input type="text"/> <input type="button" value="Browse"/>
	<input type="text"/> <input type="button" value="Browse"/>
	<input type="text"/>
Name(s) of Cognizant Development Engineer(s) (comma delimited)	<input type="text"/> <input type="text"/>
	<input type="text"/>
Name of Responsible Program Office/Individual	<input type="text"/>
Responsible Individual for Inventory Item Testing	<input type="text"/>

☐ 0x ☐ 1x ☐ 2x ☐ 3x ☐ 4x ☐ 5x ☐ 6x ☐ 7x ☐ 8x ☐ 9x

☐ Yes ☒ No

☐ Yes ☒ No

☐ High ☒ Medium ☐ Low

Choose one from dropdown list

Planned Completion Date (yyyy-mm-dd)	Code Filtering	Code Review	Renovation	Integration (optional)
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Actual Completion Date (yyyy-mm-dd)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Planned Completion Date (yyyy-mm-dd)	Validation	Implementation	Certification	Retirement
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Actual Completion Date (yyyy-mm-dd)	<input type="text"/>	<input type="text"/>		<input type="text"/>
List of Support Products if any		<input type="text"/> <input type="button" value="Browse"/> <input type="button" value="AddTo"/>		
Comments (limited to 255 chars)		<div><div></div><div>▲▼</div><div>◀▶</div></div>		
Comments (Y2K Project Office Use Only, limited to 255 chars)		<div><div></div><div>▲▼</div><div>◀▶</div></div>		
<input type="button" value="Reset"/>		<input type="button" value="Submit to database"/>		

Click here
to go
HOME

***** Y2k Certification Record *****

C - JPL Implemented System

If you have problems or questions concerning this data, see the [Reps Listing](#)

[NEW Y2K on
PDMS Instructions](#)

Record

Modify

Cancel

File

Files

Un/Reserve

Life Cycle

Electronic Signature

Waivers and Children

View Record History

Other

Login/Out (pdmsio)

Format for Print

Mode:

BROWSE

Y2k Inventory Item Number:

0005000

Revision:

Release Status:

"Preliminary Phase"

Inventory Item Name:

None

Mission Criticality:

NON-CRITICAL

Risk Level:

N/A

Responsible Org No.:

0

Cog. Individual:

None

Supervisor:

None

Number of Files Attached:

1

Date Record Created:

Pending

Notes:

None

Reserved by:

Reserved on:

Reason:

Netscape: File Operations - Y2K 0005000;1@PRELIMINARY

Y2K

0005000;1@PRELIMINARY

Select a file from the list and click on one of the following options:

Attach New File

Detach File

Check Out

Check In

Copy Out

Make Active File

Mark As Multiple

Multi-File Document

☒

Active File

Attached Files:

File ID	File Date	Description
<input type="radio"/> CARTOON TRNG 1A.DOC	07-MAY-1998 09:27:24	

Download and configure PTC's [Product View](#) for viewing CAD files.

Multi-File Document

☒

Active File

Release History of Y2K record 0005000

[View Record History](#)
[Format for Print](#)
[CLOSE](#)

Level	Check	Sign-Off Date	Signature	Notes
Certification Obsolete				
Certified by Project Manager				
Signed by Witness				
Signed by Supervisor				
Signed by Cog-E				
Yes <input checked="" type="radio"/> No	Attached Code Inspection Report <div>Comments?</div>			
Yes <input checked="" type="radio"/> No	Attached Test Report <div>Comments?</div>			
Created	<div>Promote Demote</div> <div>Comments?</div>	28-JAN-2000 09:47:39	<u>Li-Yu Sung</u>	
Preliminary Phase		17-FEB-1999 09:58:57	SHERPA	



*** Y2k Waiver Record ***
A - Variance from Minimum Test Requirements

Record	File	Life Cycle	Other
<input type="button" value="Modify"/> <input type="button" value="Cancel"/>	<input type="button" value="Files"/>	<input type="button" value="Electronic Signature"/> <input type="button" value="Un/Reserve"/>	<input type="button" value="Login/out (pdmsio)"/> <input type="button" value="Format for Print"/>

Mode: BROWSE	Y2k Waiver Number: 1	Revision: -	Release Status: "Created"
Waiver Name: None			
Mission Criticality: N/A		Vendor Certified (COTS Only): N/A	
Risk Level: N/A		Responsible Org No.: 0	
Cog. Individual: None		Supervisor: None	
Number of Files Attached: 0		Date Record Created: Pending	

Notes including a List of Affected Inventory Item Numbers:
Please type no more than 10 lines.

Reserved by:	Reserved on:	Reason:
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Essential Metrics

- **Large Number of Heterogeneous Transactions Drove the Need for On-Line Database and Metrics**
 - **Thousands of Desktop Computers with Many Operating Systems**
 - **Hundreds of Internal Inventory Items**
 - **Hundreds of COTS Products**
 - **Hundreds of Documents to Review**
 - **Hundreds of Schedules to Track**

Netscape: Metrics By Responsible Organization Selection Screen

Select Responsible Organization
☐ 1xx
☐ 2xx
☐ 31x
☐ 32x
☐ 33x
☐ 34x
☐ 35x
☐ 38x
☐ 39x
☐ 3xx
☐ 4xx
☐ 5xx
☐ 66x
☐ 6xx
☐ 7xx
☐ 8xx
☐ 91x
☐ 92x
☐ 93x
☐ 94x
☐ 95x
☐ 96x
☐ 98x
☐ 99x
☐ 9xx
☒ JPL

JPL System ID

Responsible Individual
Select only j-coded item
☒ No
☐ Yes

Phase
☐ Renovation
☐ Validation
☐ Implementation
☒ Certification
☐ Retirement

Criticality
☐ Mission Critical
☐ Non-mission Critical
☒ Both

Cumulative
☒ Yes
☐ No
Display Discrepancy Lists
☐ Yes
☒ No

Time scale
☒ Monthly
Start
 Aug 1998
End
 Jan 2000

☐ Weekly
Start
 11/01/1999 to 11/07/1999
End
 01/24/2000 to 01/30/2000

Graph

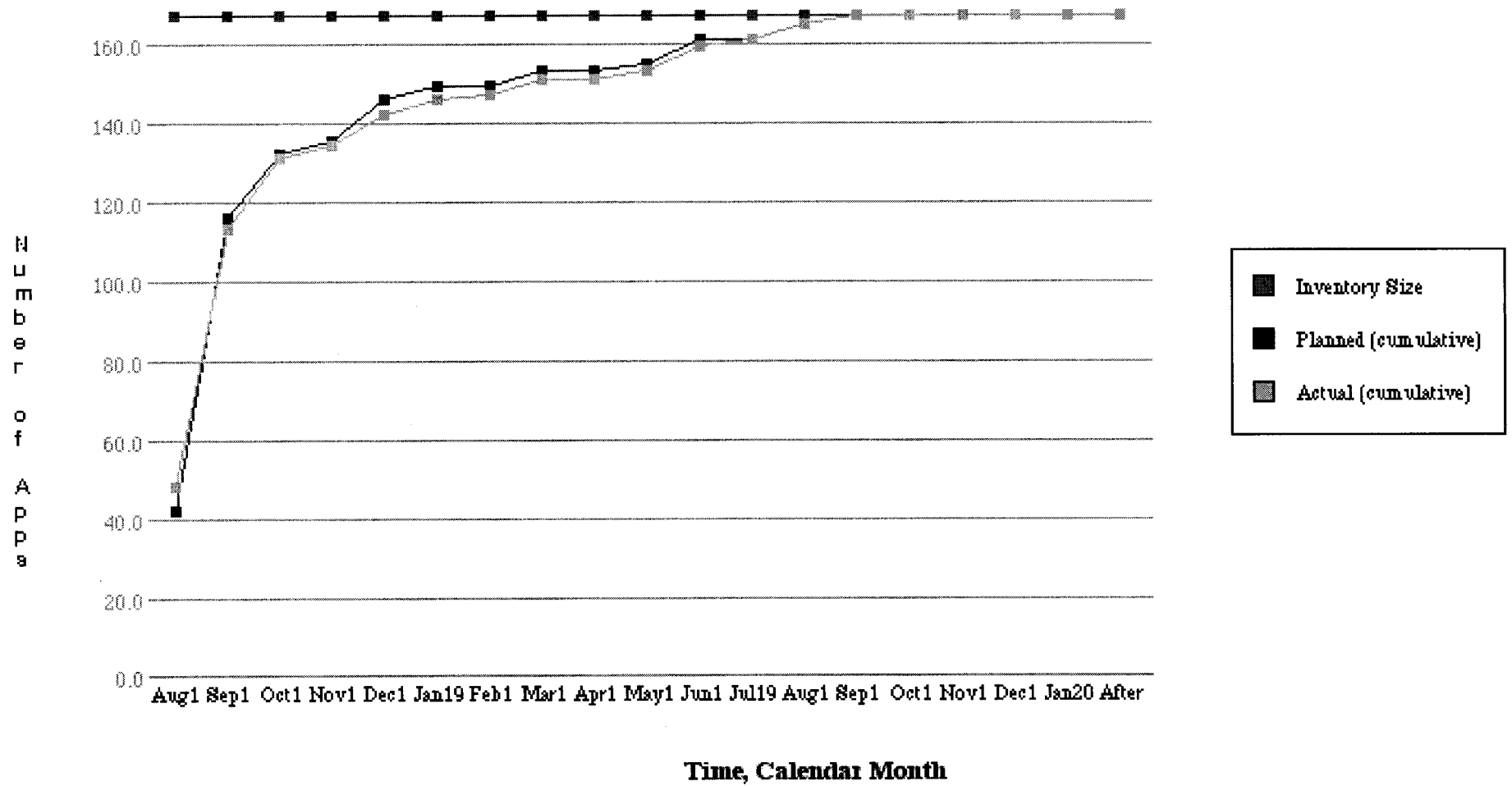
Reset

Close

Back

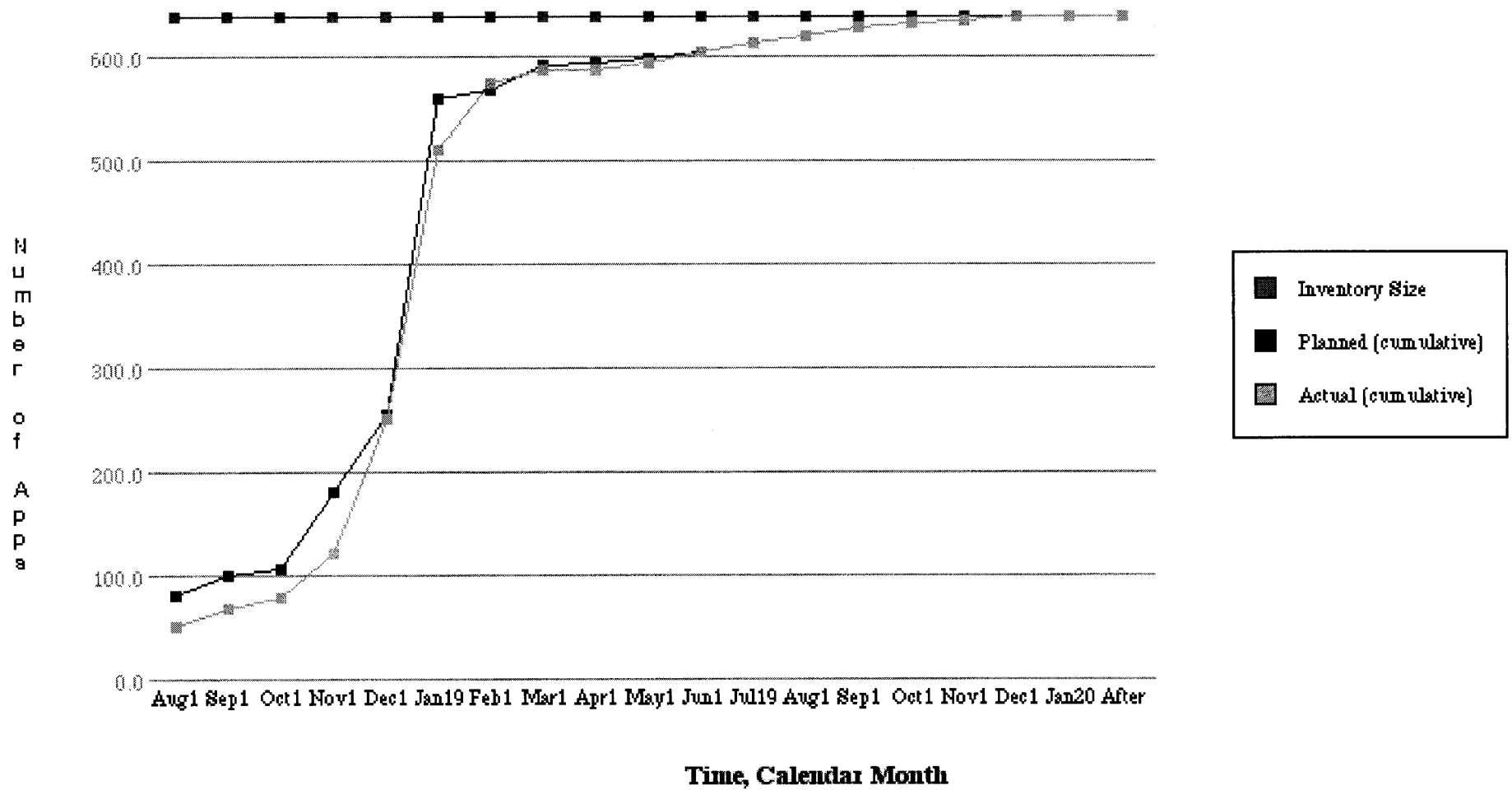
Renovation Status of Applications Responsible by JPL

{ts'2000-01-27 15:34:28'}

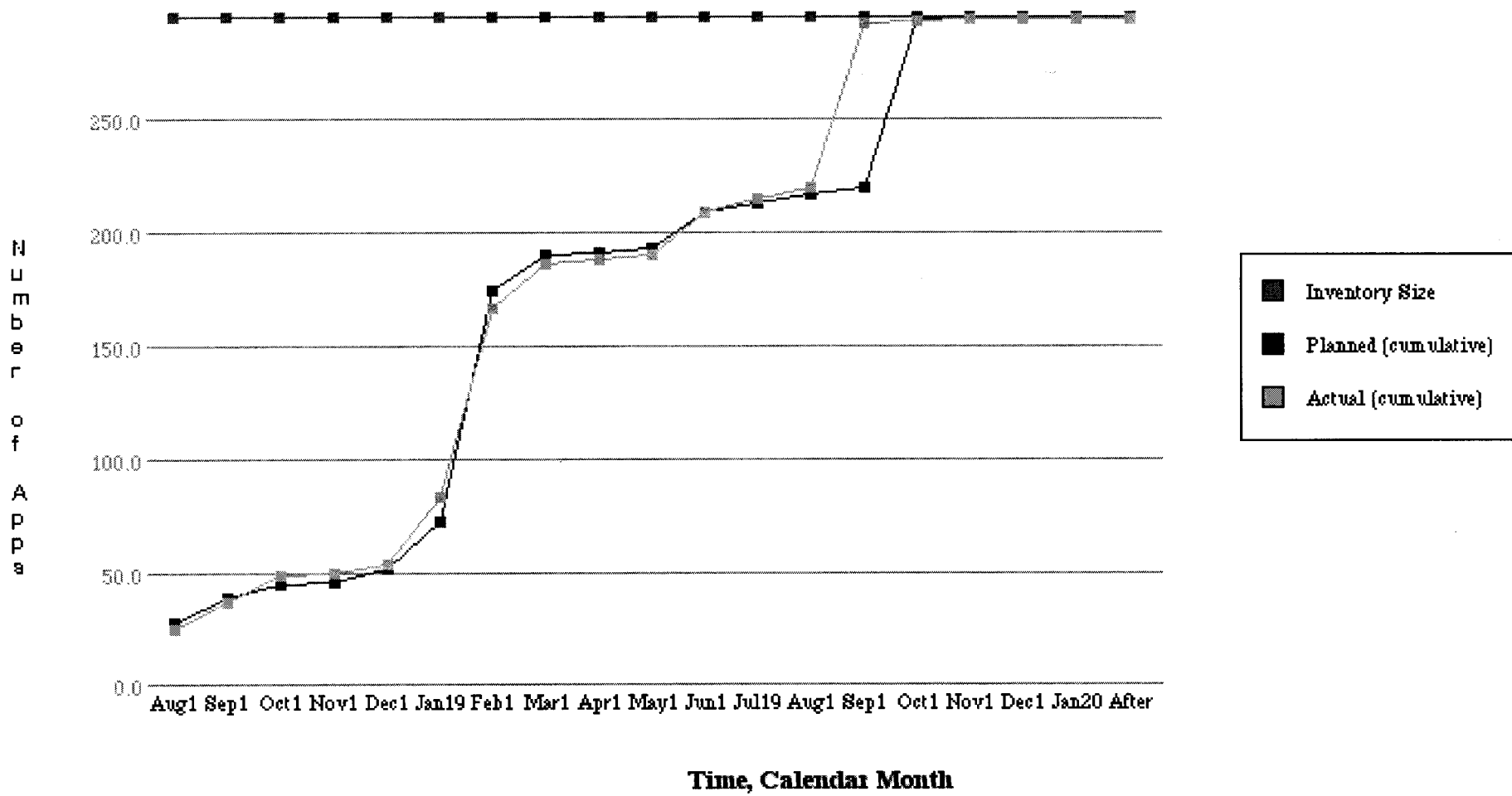


Validation Status of Applications Responsible by JPL

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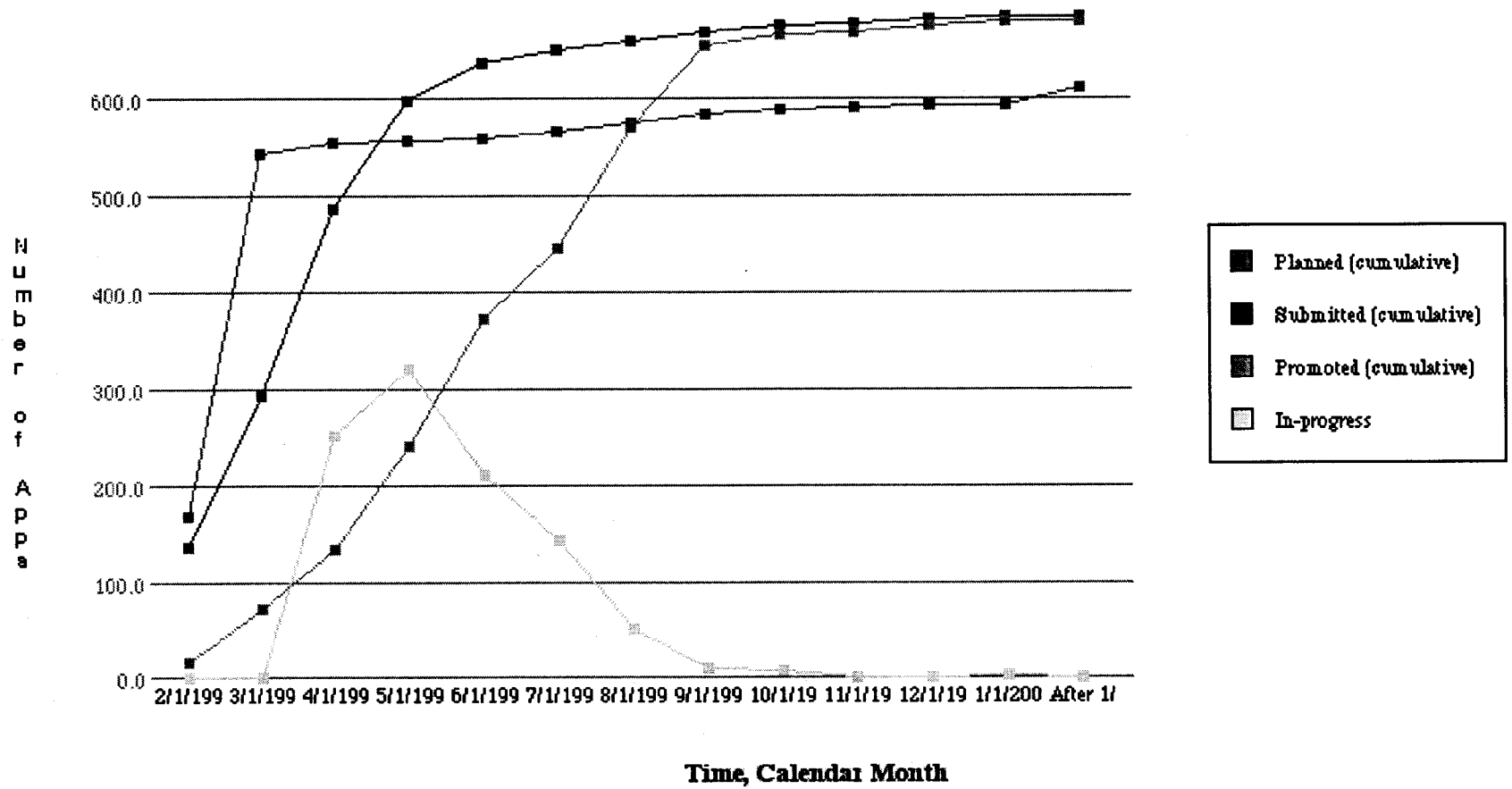


Implementation Status of Applications Responsible by JPL
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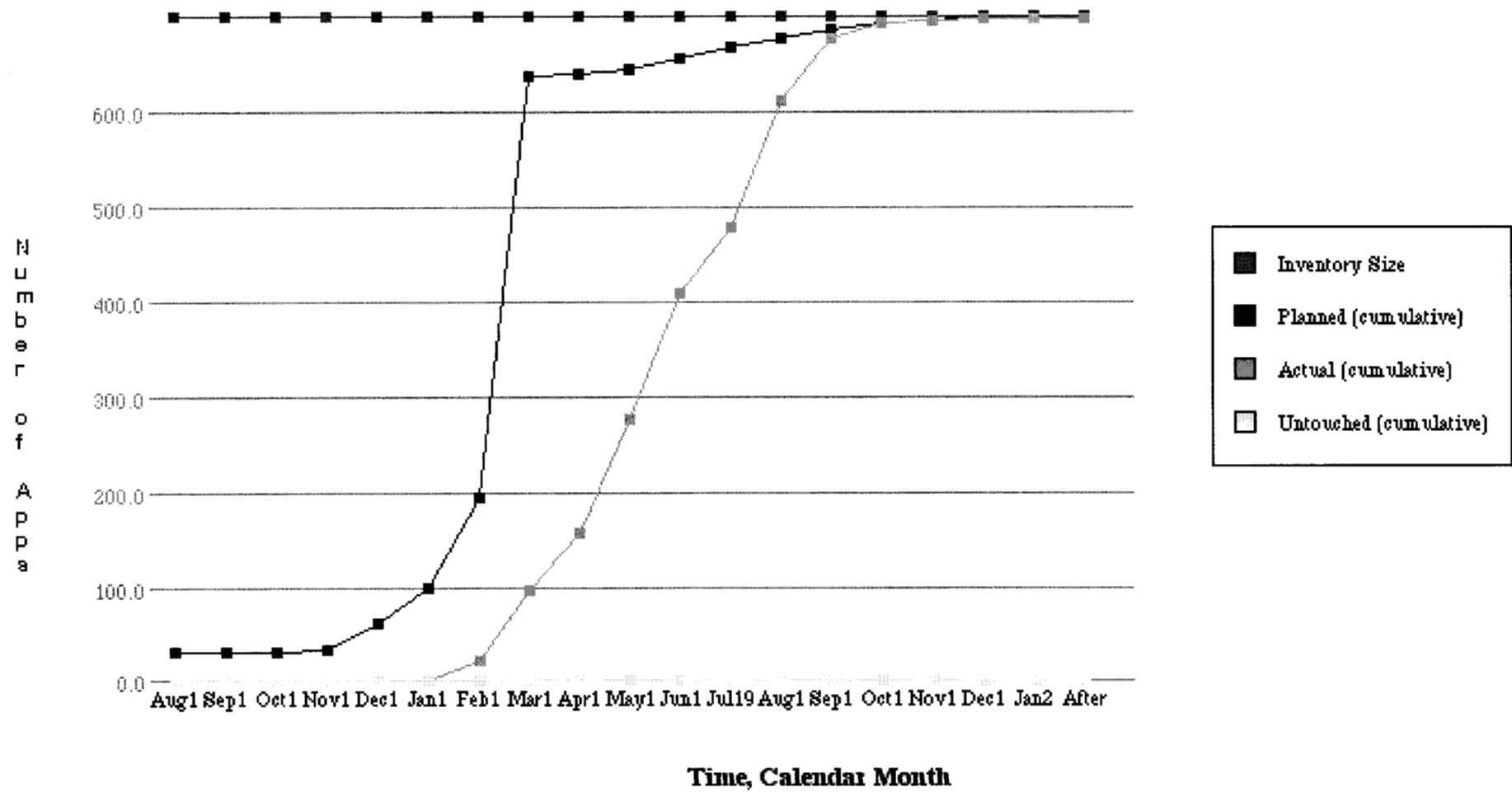


Inventory Item Witnessing Status

{ts '2000-02-03 16:31:09'}



Certification Status of Applications Responsible by JPL
{ts '2000-01-27 16:15:37'}



Retirement Status of Applications Responsible by JPL

{ts '2000-01-27 16:21:35'}

